

# Virginia Wildlife

AUGUST 1974

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Albert Earl Gilbert  
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# Virginia Wildlife

**Dedicated to the Conservation of  
Virginia's Wildlife and Related Natural Resources  
and to the Betterment of  
Outdoor Recreation in Virginia**

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**AUGUST**

**Volume XXXV/No. 8**

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## Land Use Control

"DEAR Editor:

"Blacksburg is a growing town and is spreading in all directions. Unfortunately in one direction lies the Jefferson National Forest. The adjoining land is mostly private farms and some privately owned wooded area. In its present condition there is a buffer zone between the National Forest and the populated area. However, in the near future land development companies which have bought these farms plan to develop them. It seems that there would be a tremendous detrimental effect on deer, bear and turkey in the adjoining forest. Are such developers required to file environmental impact statements in such cases?

Walter B. Mosby  
Blacksburg"

IN the case mentioned above it is doubtful that an environmental impact statement would be required since only projects involving federal or state funding need comply with this requirement. If it were, it is doubtful whether loss of habitat, or in this case degradation of habitat, for native non-endangered wildlife would be sufficient grounds for stopping the project. Which serves to illustrate that the almighty dollar determines most of our land-use policy these days.

In a paper entitled "The Tragedy of the Commons," Garnett Hardin describes a similar situation and its ultimate result.

The essence of the parable is that this village has a pasture which serves as a commons and all villagers graze their cattle on it. However, one enterprising villager seeks to improve his standard of living by grazing more cows. The other villagers follow suit and soon the pasture is destroyed, bringing ruination to all.

Although originally used to illustrate uncontrolled growth, it also indicates that the profit motive may not be the best incentive for managing a fixed resource like land. Very few acres of farmland can produce enough to compete with the land developer and his offers of several thousand dollars per acre. Yet each acre so developed is essentially lost forever to our country's agricultural pool. Likewise, losses of wildlife habitat are seldom offset by increases elsewhere.

The day must come where development of land is limited to that use for which it is best suited. The only alternative is for the price of food to rise so drastically that it becomes more profitable to farm than subdivide. If such were to happen few could afford the price of survival to enjoy the stability it created.

Virginia is now addressing itself to this delicate problem, but so far studies and legislative attempts have not resulted in enactment of the necessary laws. To tell a man he must continue to raise corn while from his neighbor's property sprout high-rise apartments will never be popular.—H.L.G.

## LETTERS

### Wrong Number

THE article in this month's *Virginia Wildlife* featuring our state-wide HATS program had the Virginia State Water Control Board's northern regional office phone number listed incorrectly. The number listed has been changed to 703-750-9111. This number will reach us during our working hours of 8:15 a.m. through 5:00 p.m. After working hours, contact us in the same manner as mentioned in the article.

Ernest E. Watkins, Director  
Div. of Surveillance & Field Studies  
Northern Reg. Office, SWCB

### Conservation in Action

ENCLOSED is a picture taken of squirrel nesting boxes and bluebird houses that I built in my spare time last winter out of



scrap lumber. This has been a wintertime project of mine for the past six years.

My brother-in-law, Mr. Frank E. Glaine, and myself own several acres of land in Culpeper County. Each year sometime during the month of March we mount these boxes in the trees on our property. In addition to this, we start in May planting food patches, various trees and shrubs for wildlife.

John R. Farmer  
Arlington

### Invader from the South

IN your April edition, Joseph C. Mitchell of the Department of Biology, Virginia Commonwealth University, wrote an article on "The Snakes of Virginia." In this article, he wrote that the red-bellied water snake (*Natrix erythrogaster*) is "found in the southeastern corner" of the state. Conant's *A Field Guide to Reptiles and Amphibians* also shows that this snake is not a Virginian of the northern area.


Today I caught an approximately two-foot red-bellied water snake in Holmes Run between the city of Alexandria and Fairfax County. It is alive and well, proving that snakes don't always go by the books.

Tom Boo  
Alexandria

We are forwarding your letter to the Virginia Herpetological Society in the hope they will verify your specimen and incorporate it into their records. It may well be that the distribution of this species needs to be reconsidered.—Ed.

# AUGUST BOUNTY

By R. L. CONNER  
*Richmond*



Male scarlet tanager on walnut branch

**A**UGUST. Long, still, impossibly sultry afternoons. Cold beer and TV in an air-conditioned atmosphere. Considered by many as an "interim" month, August does indeed seem to present a problem to the nature enthusiast. Spring and summer angling adventures are over and it will be a while before the water cools enough to prod fish into striking recklessly. While the hunter perhaps has been sharpening his eye on the trap and skeet ranges along with an occasional shot at a woodchuck, he hasn't had a shot at game since he missed that big gobbler last May. His thoughts look toward next month's dove opening.

Birds and their songs are conspicuously absent; bird watchers are awaiting the fall migration. Even many whose chief outdoor interests are botanical decry August; they are lamenting the last wilted lady-slipper and looking forward to September fields of goldenrod and fall's first gentian.

The knowledgeable, though, smile at this description of our eighth month. They know that August brings forth phenomena uniquely its own, richly deserving of attention and appreciation.

Research for this article was done in the Allegheny highlands. Some flowers, of course, will bloom earlier in the Piedmont and elsewhere.

Where are the birds in August? A good question, and one that has mildly bothered this writer for decades. We know this is the molting season for many of them, and that their preference for solitude is marked during this process. We realize, too, that at least half the birds seen on any given trip are first discovered by their voices, and the season of song is now over. Still, these facts don't explain (to me) the near complete absence of some species from certain areas. Very interesting. No tragedy, though; the bird life that is evident is enhanced by its singularity, and observations recorded during August are easily brought to mind.

On the hill beyond my usual campsite in Bath County stands a huge walnut tree. One entire August morning several years ago the top tier of this tree was host to more than half a dozen scarlet tanagers. The thick foliage made an accurate count hazardous, but who needs arithmetic when he is looking at that many scarlet tanagers at once? A couple were males in full-plumaged glory, the most brilliantly pure color afforded the observer by any species of wildlife in Virginia. Several others were females in their peculiar yellowish-green hue; the rest were molting males, truly a startling sight with a patch of scarlet here and there on a yellow-green background.

My notes recall an incident of August 10, 1948, that I have never witnessed before or since, nor read about.

On the eastern slope of a mountain in Craig County I was watching a pair of phoebes: I believe the same pair I had observed all spring and summer as they successfully reared a brood of four. Suddenly they left their bridge abutment perch and climbed higher and higher, sounding their *phoebe* notes with every breath, till they were in and about the very tops of the tremendous oaks on that mountainside. They didn't alight, nor did they descend, but disappeared in an easterly direction, flitting over the tops of those great trees, singing all the while with carefree abandon.

Now, such behavior is completely out of character accordingly to the habits of phoebes I have studied. I

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can't recall ever seeing one go higher than, say, twenty or thirty feet, except for this incident. Human reasoning, all too easy to read into the actions of wildlife, would suggest the explanation to be simple joy and relief at the conclusion of a successful season. But was this the reason? What do you think?

The month under discussion, in '70 and '71, brought two instances of somewhat similar behavior in a kingfisher, a bird of totally different habits.

Locality: my Favorite Place, along the Jackson river in Bath County, where an average resident population of kingfishers is to be found. In each instance a single bird (the same one?) was seen rising in spirals until a height of near a thousand feet was attained, barely visible through strong binoculars, its rattling call floating thinly down. Then, heading south with direct flight, it was gone. That's the impression we were left with each time: the bird was unmistakably *gone*. Possibly, I suppose, in this mountainous region, we were witness to the first step of a migratory flight.

Again, very interesting, the important point being that August is the prime month to discover such odd behavior in our birds.

Botanists have described over twenty-five thousand species of the cosmopolitan orchid family. Virginia can claim only a fraction of these highly developed and interesting plants, but now is the blooming period of some of the most beautiful.

The yellow-fringed orchis is a striking sun-loving species, and is usually a prime target of my first August outing. Wide ranging and hardy, its orange spike of blooms may reach a height of more than two feet. Not so delicate as they look, the blooms have a stiff, waxy feel, somewhat like polyethylene plastic. I know a place where they grow, sometimes in profusion, scarcely inches from the roadway that is the main north-



Yellow-Fringed Orchis

Twayblade



south route for that county. After the fashion of true beauty they are near for all perceptive seekers, forever distant to those of callous and insensitive nature.

Acquaintanceship of the purple-fringed species is not yet mine; I look forward to our first meeting.

Not to be seen at sixty miles per hour, even though it be there, is the twayblade. Small, of secluded and shaded habitat, this orchid's coloration is in perfect harmony with its shy, retiring nature. The broad lip is almost transparent, its delicate mauve tint providing the only noticeable color about the plant, excepting the paired green basal leaves. My Favorite Place has several colonies of these rather hard to find but especially rewarding little beauties.

The most aptly named jewelweed, or touch-me-not, with its pendant, spotted orange blossoms grows in dense tangles along the banks of streams; upon quitting the water I always stop to admire them. In several places the pale yellow variety grows alongside the orange: another instance of a truly exquisite creation rendered commonplace because of availability and abundance.

The banks along those waters are hosts also to the spectacular cardinal flower, our only red lobelia. Called "America's Favorite," this species is probably August's most brilliant botanical offering. Overpicking of this plant, although common, has caused concern among conservationists. Hard to transplant and wilting almost immediately upon picking, this wildflower is, like most, best appreciated in its natural setting. Leave them be!

We have listed here only a sampling of the natural phenomena available for our contemplation during the month of August. Its unique transitional flavor should not be missed by those among us professing an interest in our natural environment.



'Jewelweed'

# LOST

## ON VIRGINIA'S EASTERN SHORE

By JAMES EARL HESTER  
*Hurdle Mills, North Carolina*

**G**ETTING lost or running out of gas while fishing is a frustrating, unnerving experience, especially in little-traveled coastal waters where there are numerous marshes and no houses nearby. And unless one has made preparation for such a happening, real disaster could well result.

Last summer my father, Earl Hester, and I of North Carolina, along with my brother-in-law, William C. (Bill) Davis of Virginia Beach, and his father, Robert E. (Bob) Davis of Norfolk, were fishing in Sand Shoal Channel out of Oyster on Virginia's Eastern Shore when we lost sight of the channel markers. Although we had a map and compass, we were unable to determine our location and, after an hour or so of futile searching, began to run low on gas.

There were no other boats in the area, and for awhile it looked as if we would have to spend the night in the boat. Then, far off in the distance, we spotted an oyster watch house that had been built on pilings at the edge of a marsh.

There was no one at home, but a black mongrel dog began barking at us as we tied up at the dock. Realizing that someone would be back eventually to feed the dog, we decided to wait, settling down on a bench in front of the house.

The afternoon passed slowly and, as darkness approached, the owner of the house still had not returned. It was obvious that we would have to spend the night. Lifting the latch on the unlocked screen, we went inside.

We entered what looked like the dining room, and in the semi-darkness we could see that it contained a bunk, a large table, and a small cupboard filled with what looked like good-quality china. There were four other rooms, all small but clean and extremely livable. One of them was the kitchen, which contained a sink, a gas stove with the pilot light burning, a small refriger-

erator, and a couple of cabinets. Two buckets of water complete with old-fashioned dippers sat on one cabinet, while on the shelf in the other was a jar of instant coffee, a bottle of syrup, and some pancake mix. There were also several cans of dog food beneath the sink.

The bedrooms each contained two or more bunks and a pitcher and wash basin. There were also extra blankets for each bunk. But what looked best to us were the two lamps, both filled with kerosene.

In a few minutes, Bob, my father and I had lighted one of the lamps and were seated at the dining room table, waiting for Bill to return from the boat with what was left of lunch and a few other items.

A thick fog hung over the area when we arose the next morning. About nine o'clock visibility began to improve, and a little while later Bill spotted a boat far off in the distance. But not having a horn or whistle, we were unable to contact it.

Shortly before ten o'clock, we heard a helicopter somewhere in the distance. Bill used a mirror he had found in the house in an effort to contact it, but it was too far off. Soon we could hear it no longer.

The dog seemed to enjoy our presence as Dad (l.), Bob and I awaited rescue.





A little while later, the helicopter came into hearing distance again. Bob removed his shirt and began waving it, while Bill continued to reflect the sun with the mirror. It wasn't long before the helicopter, belonging to the Coast Guard, had located us and was hovering just overhead, not able to touch down because of the water and soggy ground.

The men in the helicopter determined through use of a blackboard that we were lost and running low on fuel, then circling the area for a few minutes, they disappeared in the distance. While the chopper was gone, we collected our things from the house, and Bob left a note telling the owner what had happened and asking him to call him collect in Norfolk. We had already made the beds and cleaned up the place.

At about the same time that the helicopter returned with the gas, Virginia Game Warden John Crumb arrived on the scene. I rode with him in his boat as he led us back to the landing at Oyster.



The helicopter crew determined our problem through use of a blackboard.

The warden told me that we were about 10 miles or so from Oyster. He said that we were several miles south of Sand Shoal Channel, or Cobb's Channel as he called it, and had apparently crossed South Bay during high tide to reach the house. The bay, he explained, became mud flats during low tide.

There was little fishing in the area, Crumb said, the water and marshes being used chiefly in the fall for hunting clapper rail, a migratory game bird. There was also some duck hunting, he said.

Crumb told me that a friend of Bob's had called him from Norfolk about 10:30 or 11 o'clock the night before and that he assumed that the Coast Guard had been notified at about the same time. He said that he drove down to the landing after receiving the call and saw that our car and boat trailer were still there. He then got in his boat and went out Sand Shoal Channel to Cobb's Island to see if he could spot our boat. When he was unable to do so, he returned home and resumed



Virginia game warden John Crumb led us back to the landing.

the search after the fog had lifted the next morning, which was this morning now. Meanwhile, the Coast Guard was sending a boat from Cape Charles on the Chesapeake Bay. That boat had remained out all night. The helicopter had been sent up this morning from Elizabeth City, N. C.

The warden explained that he had spotted the Coast Guard helicopter circling over the watch house and realized that we had been found. He said his department and the Coast Guard worked together quite a bit, the Coast Guard usually notifying his office about lost fishermen or hunters in the area. "All we lack is radio communications with each other," he said.

As Crumb was driving off from the landing in his car, I marveled at the efficiency of both him and the Coast Guard in carrying out our rescue. But I couldn't help but wonder what would have happened to us had no one been expecting us at home, and had we run out of gas before discovering the house.

Later, I wrote the Coast Guard and asked officials what a boat owner should do in preparation for the time when he might become lost. They wrote back and said that as an aid to the Coast Guard in locating a lost boat one should:

1. Equip his boat with a two-way radio ;
2. Carry visual signaling devices such as a small mirror or red flares ;
3. File a float plan with a reliable relative, friend or neighbor, telling him or her, among other things, where the boat owner is going, who will be with him, and when he'll be coming back.

The Coast Guard said that in addition to the extra equipment required for the issuance of the Coast Guard Auxiliary Courtesy Motorboat Examination decal, one should also carry spare provisions, spare water, spare parts, a first aid kit and a tool box. In addition, he should operate his boat in a safe manner and keep a close watch for other boats operating in the area.

# Joe-pye-weed

By ELIZABETH MURRAY  
Charlottesville

Illustrated by Lucile Walton



LATE summer is the season for the composites. Throughout pasture and meadows, along the roadsides and in the fringing woodland areas, tall robust members of the daisy family will be found blooming in abundance.

The Compositae are sometimes called the Asteraceae to bring the name in line with the large majority of plant family names which have the ending aceae. The group forms the largest family of vascular plants, with an estimated 950 genera and some 20,000 species. Members of the family are found throughout the world although most of them grow in temperate regions. About 2% are trees or shrubs (mostly tropical species); the remainder are herbs, that is, non-woody plants which die back to ground level each winter.

Composites have very specialized flowers, considered by some botanists to represent the apex of one line of evolution in flowering plants. The flowers are of two types, disc flowers and ray flowers, and are gathered together in a dense head at the tip of each stalk. Surrounding each head is a series of projections known as a *pappus* which some people regard as a modified calyx, while others consider it to be formed of projections from the ovary. Leaves are alternate or opposite and occasionally whorled, as in the genus *Eupatorium* which contains Joe-pye-weed.

Mithridates Eupator was a Persian general in the second century B.C. who was chiefly known for his skill in baffling the Roman armies. Less is known about his skill as a medical prescriber, but he is supposed to have administered some species of *Eupatorium* medicinally, which is why the genus bears his name.

*Eupatorium* is a large genus with more than 25 species in the eastern U.S. The species which are most commonly given the name Joe-pye-weed are *E. purpureum* and *E. fistulosum*. The two are quite similar, the main distinguishing characteristic being stem structure. In *E. purpureum* the stem is solid whereas in *E. fistulosum* it is hollow.

The plants are tall, from three to ten feet high, branching at the summit. The lance-shaped leaves are arranged in whorls of three to six. The flowers are a peculiar dull pink and are grouped in numerous small clusters at the end of the stem branch. Each individual flower is tubular with a long projecting hairy pistil. The flowers bloom from the latter part of July through September. *E. fistulosum* is found in slightly damper localities, banks of roadside ditches, meadows and thickets. *E. purpureum* prefers drier habitats such as

rich, calcareous woodlands. Both plants are found in the East Coast states and throughout the Midwest.

Joe Pye himself was an Indian doctor who gained some notoriety traveling through New England using the plant to treat cases of typhus. (I suspect that "treating" is a more accurate verb to use here than "curing"!) Actually, the use of Joe-pye-weed (also known as boneset) was widespread at the turn of the century, being employed to treat malarial fever and influenza. Probably *E. perfoliatum* was the species most commonly used medicinally. One old wildflower book, published in 1916, says that a fever "once had its terrors for a patient increased a hundredfold by the certainty he felt of taking nauseous doses of boneset tea, administered by zealous old women. . . . Children who had to have their noses held before they would—or, indeed, could—swallow the decoction, cheerfully munched boneset taffy instead." So it does not sound like a particularly palatable remedy. A related species *Eupatorium rugosum*, or white snakeroot, is poisonous, containing several glycosides and a complex alcohol called tremetol. When cattle eat the plant, the poisons become concentrated in the milk and can cause the disease in humans known as "milk sickness." This was a common condition in colonial times and in the early 1800's it became an important cause of human death. Nowadays, with processed milk, it is practically unknown, the only danger occurring when raw milk is used from the family cow.

Joe-pye-weed has a large number of other common names, amongst them—thoroughwort, trumpetweed, gravel weed, kidney root, agueweed and queen of the meadow.



# THE AMERICAN EEL

By E. L. STEINKOENIG

*Fish Biologist Assistant*



Photo by John Kauffman

I REALIZED at once the squirming serpentine fish I had just reeled from Burke Lake was not the "lunker" I had been seeking. Instead, I had inadvertently captured an American eel.

The American eel is a true fish with fins, gills, and fine scales that evolved 130 million years ago during the so called "Age of Fishes." The muscular body is covered with a thick layer of mucus which, as the old adage "slippery as an eel" indicates, makes them almost impossible to hold. The American eel is the only eel species found in fresh water, and is the only true eel found in the United States.

For a long time scientists were baffled about the breeding and development of the American eel. Finally, in 1922, after 17 years of research, Dr. Johannes Schmidt reported the location of their spawning grounds in the Sargasso Sea, saltiest spot in the Atlantic Ocean, located northeast of Puerto Rico. The American eel is catadromous: it migrates from fresh to salt water to lay eggs.

It is believed that all freshwater eels lay eggs from the months of January to March. Each female lays up to 10 million eggs some 1200 to 1500 feet under a luxurious mass of seaweed. From this point on, the eels go through several body changes until they reach maturity, at which time they mate and die. As the eggs float in the middle depths of the seas, they break open releasing live organisms that look like tiny, transparent ribbons (called leptocephalus larvae). Their migration begins by being carried northward with the currents of the Gulf Stream. As the young are carried northward, their bodies are continually growing. When they are about three inches in length, their bodies become cloudy. It is at this stage in life the young eels are eaten by other fishes, drastically reducing the eel population.

For most of its early life the eel is sexless. It gradually develops the organs of both males and females. Finally one set of organs becomes dominant, and at that time the eel has developed into an immature male or an immature female.

When eels approach the coasts over the continental shelf, their bodies change again, shrinking from the

three inch larval form and becoming cylindrical in shape instead of broad and flat. The eels are still transparent but are now called grass eels or elvers. American eels can only tolerate narrow ranges of salt concentration in water at certain stages of life and wide tolerations during other stages of life. This is due to hormonal activity within the body, and is one reason the young eels migrate to fresh water. The so-called grass eels grow slowly, becoming immature, yellow eels. They eat anything they can find, including fish, clams, insects, and crayfish. Because of their eating habits, young eel pose an economic threat to commercial fishermen. They often eat netted salmon, oysters, and clams.

Young eels find their way up numberless creeks, streams, and rivers. They are active mainly in summers, spending the next ten to twelve years swimming into lakes, farm ponds, and ditches while moving constantly inland. Females go to great lengths to move inland; they can even come out of water and wander over land, keeping their skins moist with the mucus which covers their bodies. When on land, they hide under stones, wet leaves, and grasses. Males usually remain behind in brackish waters near the coast. In 10 to 12 years, eels have grown from their original 3 inches to as long as 40 inches for females, 24 inches for males.

After 10 to 12 years and usually on a cool autumn night, a change occurs: the immature female turns and heads downstream. On the return trip to the sea more body changes take place. The blunt round nose becomes pointed, and the body changes from dull yellow to a glowing silver. The female joins a male at the coast and together they continue to the breeding grounds. Their digestive systems degenerate and they never eat again. No silver eels have ever been caught, by baited hook or commercially. They travel at a rate of about  $\frac{1}{2}$  mile an hour, arriving at the breeding grounds in 1 to 2 months. After mating, both the male and female die.

In recent years amazing facts about the eel have been discovered. The eel has tremendous sense of taste. It has sensors in a band along each side of its body that function like taste buds, so it is able to sense food with its side or head. It is thought that these "taste buds" act as a guidance system, and may be one explanation as to how the eels, having no parents to guide them, find their way from fresh water to their birthplace in the sea. It has also been discovered that eel blood contains a powerful neurotoxin that causes a serious infection if it gets into a cut or wound of a human while being processed for market.

Although some countries such as Japan harvest eels in hatcheries for the fat white meat, I do not find its taste appealing.



## SPARKLING SUMMER LAMPS

By CATHARINE MARSDEN

*Greenbelt, Maryland*

**T**HERE are about 75 species of fireflies in the United States, but the story of fireflies in Virginia is most interesting. One June night we saw hundreds of fireflies in a juniper tree in Pohick. The tree was turned into a summer Christmas tree, full of shining lights.

In the beginning fireflies are tiny eggs laid on the ground. Even these eggs have a faint glow. They hatch in a few days and tiny larvae emerge. These larvae live on the ground and even burrow under the ground. They eat hungrily all the time, snails, cutworms, earthworms, and any insect not too large for them to overpower. Always they have the little glow on their undersides.

The larvae eat like spiders. Their jaws are tubular and work in two ways. First, saliva which paralyzes the prey, and predigests it, is ejected through the mandibular tubes. These larvae cannot bite into skin, and their saliva has no effect on people.

Second, the "soup" produced by the predigestion is sucked into the tubes and nourishes the larva. Thus the firefly larva does not take in solid food or chew like a grasshopper does.

The larva finishes its growth by autumn and bur-

rows into the earth where it transforms itself into a pupa and stays in its little ball all winter.

In the spring the pupa breaks out of the cell, moults, and becomes an adult. It unfolds delicate wings, and now it is a firefly. It is oval shaped, with a brownish back, has two antennae sticking from its funny little head, and six legs.

The marvelous thing about this flying beetle is that the back segments of its abdomen glow with a sparkling light, off and on, off and on.

The fireflies sleep in bushes and grass during the summer days, but at night the males soar and dart through the darkness, making the field and bushes and trees sparkle with myriad bursts of light.

These flashes are courtship signals, songs of love, and play an important role in mating. Each male is seeking a female and he must hurry and find her, for fireflies live only about two weeks as adults.

The females wait in the grass and trees. Their tail lights are shorter signals, in answer to the males' longer sparkling signals. With longer flashes from the male and shorter flashes from the female, they soon find each other. They mate, and in a few days the female deposits her fertile eggs. Soon they both die.

Fireflies on the Pacific coast do not flash, although some of them glow. Scientists have not been able to raise flashing fireflies in that area.

Fireflies have few natural enemies. Sometimes they are caught in spider webs, but the spiders quickly drop them. Night-flying birds and bats do not eat them, apparently because they taste bad. Even a praying mantis will not eat fireflies. However, there are tropical frogs that gorge themselves on fireflies, until their stomachs glow bright enough to show up their anatomy like an X ray. Also, there is a common North American genus of firefly, *Photuris*, which mimics the flashing signals of other species and attracts the males to her, not to mate but because the *Photuris* feeds on males of other species. Often children scoop fireflies into glasses and watch them flash their lights off and on, but usually the males find the females without interference.

The chemical and physical properties necessary for the emission of light by a firefly are numerous and very complex. It appears that a substance called luciferin is oxidized in the presence of different chemicals such as oxygen, water, adenosine triphosphate, and magnesium salts. The oxidation process is controlled by an enzyme called luciferase. The demand for this chemical used in research is so great that firefly catchers can't keep up according to the supplier, Sigma Chemical Co. of St. Louis.

Fireflies, with their amazing system of flashing for sexual communication, are the most easily observed of the insects, plants or animals blessed with the gift of bioluminescence. Their strange light, without heat or fire, has long been the study of scientists. Its duplication by men would be useful in flights into outer space.

VIRGINIA WILDLIFE



# CONSERVATIONGRAM

Commission Activities and Late Wildlife News... At A Glance

## GAME AND FISH LAW SUMMARIES AVAILABLE.

The Virginia Commission of Game and Inland Fisheries has just published the annual summary of the State's game and fish laws. The colorful booklets cover the more important rules and regulations that guide hunters and anglers in the Old Dominion. Copies are available from license agents throughout the Commonwealth, from your local game warden or from the Commission's Richmond office. To receive a copy by mail, write Box 11104, Richmond, Virginia 23230.

## CAMPGROUND FEES IN CORPS AREAS.

During 1974, the Corps of Engineers will charge user fees for campgrounds operated at 158 sites in 32 states. At 600 other campgrounds, no user fees were charged. Entrance fees are not collected at any Corps recreation area. The fees, ranging from \$2.00 to \$3.50 per day, will be charged for campgrounds with flush restrooms, showers, access and circulatory roads, sanitary disposal stations, visitor protection control, designated camping spaces, refuse containers and potable water. Folders containing maps, directions, and lists of facilities at all Corps recreation areas, entitled "Lakeside Recreation," are available without charge from the Public Affairs Office, Office of the Chief of Engineers, Washington, D. C. 20314.

## IMPROPER PESTICIDE USE COSTLY.

During the first nine months of its pesticides civil enforcement program, which began in May 1973, the Environmental Protection Agency has proposed penalties amounting to approximately \$563,000 against 235 firms for alleged violations of the Federal Insecticide, Fungicide and Rodenticide Act.

## SAFE CANOEING IN VIRGINIA.

An eight-page booklet outlining guidelines for safe canoeing and float fishing is now available. Published by the Game Commission in cooperation with the Float Fishermen of Virginia, the publication details necessary canoeing preparedness, river classifications, signs of a river in flood stage, canoeing equipment and group canoeing. Available from the Game Commission, Box 11104, Richmond, Virginia 23230.

## GEORGE WASHINGTON FOREST ANNOUNCES FEES.

The George Washington National Forest started collecting fees at some recreation areas on June 22. Todd Lake, Brandywine Lake, and Trout Pond Recreation Area charge is \$2.00 per night for camping and \$1.00 per car for day use. Elizabeth Furnace and Camp Roosevelt are also \$2.00 per night for camping, but there is no charge for day use. Sherando Lake charges \$3.00 per night for camping and \$1.00 per car for day use. The other campsites are open for year-round camping although water may not be available during winter months. On June 7, 1974, the President signed into law the Land and Water Conservation Fund amendment making it possible to collect fees at recreation areas. The money is distributed among Federal and State agencies for purchasing of new areas and maintenance of present fee areas.

## SENATE PASSES EASTERN WILDERNESS BILL.

The U.S. Senate, by voice vote, has approved the Eastern Wilderness Act of 1974, according to the Wildlife Management Institute. The Act, S. 3433, was, at press time, pending before the House Subcommittee on Public Lands. The Act would designate 19 areas in 15 states as wilderness within the National Wilderness Preservation System. It also would withdraw 40 areas in 18 states and Puerto Rico to be studied as to their suitability for wilderness status. All of the areas are in eastern national forests.



## WILDERNESS IN YOUR BACK YARD

By CARTER D. HAMLETT  
*Richmond*

**H**OW many fishermen, campers, and other lovers of the great outdoors dream of visiting virgin wilderness and untainted streams? I had for years entertained a desire to "get away from it all" but had lacked the means to finance a trip to Canada or Alaska or some other exotic wilderness area. However, I found a reasonable substitute for this kind of high adventure within a hundred miles of my home in Richmond: a substitute which is also within the grasp of nearly every nature lover.

I am speaking of float-tripping down relatively small streams in a small boat. For several years I had owned a 12-foot aluminum johnboat, which I used for fishing in lakes and streams near Richmond and also in my original home area of Charlotte County, Virginia. Last winter the idea came to me of using the boat for an overnight fishing and camping expedition along an undeveloped stretch of Cub Creek in Charlotte County. The idea seemed to offer a good opportunity to do some "primitive" camping as well as good panfishing, so I followed it up to the extent of purchasing a detailed topographical map of the area from the Virginia Division of Mineral Resources in Charlottesville. These maps cost only 75 cents each and provide detailed information on features such as land contours, wooded versus open land, roads, railroads, and streams.

The next step was to select as isolated a stretch of Cub Creek as possible, yet a stretch with two bridges close enough to each other as to allow for a two-day trip. I chose the 10-mile stretch of creek between the villages of Phenix and Harrisburg.

The usual excitement of packing for an overnight camping trip was heightened in this case since all provisions and gear had to be stowed in waterproof bags in the small boat. My 10-year-old stepson, James Williams, and my 17-year-old nephew, Kenneth Hancock, would accompany me.

On the morning of last August 25th, we car-topped

the boat to "Old Bridge" near Phenix, loaded it with our gear, and struggled through weeds and briars to the stream's edge. We had an uneventful launching, and the float trip was underway! We traveled over half the distance between the launching and pickup points the first day. Cub Creek is a relatively small stream. Originating in south central Virginia, it flows into the Staunton River in Halifax County. Its width very rarely exceeds 30 or 40 feet and its average depth is probably thigh or waist level, with some pools up to eight feet in depth. The soil composition of the area is a mixture of clay, sand, and soft sandstone type rock. The stream supports a native population of catfish, bream, and horny head chub, along with some pike, crappie, sucker, striped perch and bowfin.

The stream and surrounding terrain were quite rugged and attractive. There was little or no trash, and the water was as clear as Cub Creek ever is—rather turbid with a visibility of about 12 inches. The banks were bushy, and long stretches of the creek were bordered by sycamore, river birch, gum trees, with a sprinkling of oak and cedar. We did not see any people or even signs of recent human activity (no burned-out campfires, footprints, fences, roads, or bridges) for about eight miles of the ten mile journey. Nor could we hear any human noise except for the faint drone of an occasional airplane. We did encounter in the stream and on its banks trees which had been felled by the gasoline saws of the loggers.

The first day's travel was complicated and slowed by deadfalls and snags which prevented easy passage of the boat. We spent more time in the water than in the boat, dragging it around or over obstacles. We had anticipated this problem and wore tennis shoes and swimming trunks. We accumulated a fine collection of scratches, bruises and minor lacerations from ankle to knee, caused by bumping into or tripping over underwater snags. We also shared possession of the boat with an occasional wolf spider who, much to our and its dismay, would be dislodged by our passage from an overhanging limb or twig.

We took time to fish some of the most likely looking





pools with good success. Using spin-cast reels and baiting with shrimp, we took a nice mess of panfish. We were particularly pleased with the cooperation of the catfish, who were numerous and hungry. We caught both channel and bullhead cats. Most of the cats we took were around 15 or 16 inches long.

One pool provided some especially pleasant moments. The creek curved sharply to the right, and a deep pool of quiet water was near the left bank. A huge fallen tree had almost completely blocked the stream at that point, and we had beached the boat some yards upstream and walked down to fish the hole. I set my bobber at 4½ feet, and cast downstream into the pool. The bobber drifted downstream for about 6 feet, then abruptly dove out of sight, and stayed under. I jerked my rod tip sharply upward to set the hook, and felt the strong throbbing pull which indicates a sizable fish. The fish made a run for the debris collected against the fallen tree, but I was able to turn it and bring it to the surface. Kenneth brought the net and slid it under a hefty catfish.

About five minutes later, using a heavier sinker and no bobber, Kenneth took another 16 inch whiskered cat in the swift deep water just downstream from the fallen tree.

Again, after a short interval, I hooked a catfish in the quiet pool. This one seemed to think itself a bass—it heaved up to the surface, tailwalked and flopped until it succeeded in throwing my hook. After this, things quieted and we moved on a few minutes later.

We had pulled the boat ashore at a sandbar earlier and roasted weiners over a wood fire made from dry sticks.

About an hour before dark we put ashore at a high sandbar just south of a bend in the creek. We were wet, tired and scratched from maneuvering the boat, but a change into dry clothing helped us feel fresher. We made camp, set a trotline in the creek, and ate a dinner consisting of Vienna sausages, cold biscuits, sliced tomatoes, and roasted potatoes.

After dinner we kept up the fire and fished tightline, listening to the call of a whippoorwill, faint with distance. We were sitting on a log about a yard from the water's edge when Kenneth spotted a three-foot water moccasin in the water right at our feet. Apparently attracted by the light from the fire, it had swum to the shore.

Next morning we broke camp and headed downstream around 9:30. We had planned an earlier departure, but the coolness of the early morning air and the coldness of the water made us reluctant to leave the warmth of the sleeping bags.

We had camped a couple of miles south of the point where Sandy Creek empties into Cub Creek. Fortunately, the creek was straighter and wider on the second day, and we had to leave the boat only twice. The current was swift enough and the snags frequent enough that



we had an interesting and exciting game guiding and maneuvering the boat past or between them.

During the course of the trip we saw many animal tracks on the sand- and mudbars: raccoon, snake, deer, and muskrat. We also saw a squirrel and a hawk. There were quite a few animal paths leading down the banks to the water, and also we saw several burrows (perhaps groundhog or fox) tunneled into some of the higher banks.

At one point we passed two ancient cedar logs which had been driven in the stream bed about three feet apart near the west bank. These logs were about the diameter of a man's thigh and protruded about 15 feet above the surface of the water. We guessed that they were end supports for a long-disappeared footbridge which must have spanned the creek years ago. No other part of the bridge remained, and the paths which it connected were no longer in evidence. The two ancient parallel piles stood alone as mute sentinels to an earlier age in Charlotte County.

About a mile upstream from the bridge selected as our pickup point, we floated by a long stretch of barbed wire fence on the left bank; this and the sound of a car's engine as it crossed the bridge heralded the approach of civilization.

We reached the concrete belly of the bridge and pulled the boat ashore at 1:00 p.m. Since we had two hours before my wife was to pick us up, we decided to have a feast. We built a fire of dry wood and let it burn down to embers. Then we cleaned several of the catfish, stuffed them with diced potatoes and onions, basted them with bacon grease, wrapped them in aluminum foil, and put them in the coals to bake. We sliced tomatoes and opened a can of luncheon meat as side dishes. After the stuffed fish were done, we gorged until we were stuffed.

This was a fine ending to a fine float trip. This was my first such trip, but it certainly won't be my last. This is the kind of outdoor adventure easily available to Virginia's nature lovers.





# WILDLIFE TRAINING

COMES TO THE COMMUNITY COLLEGES

By ROBERT J. LORENCE, *Dean of Instruction*

*Dabney S. Lancaster Community College*

Mike Perkins of Virginia  
Beach surveys with staff  
compass and jacob staff.

NATURAL Resources Technician training began in Virginia in the fall of 1969 when Dabney S. Lancaster Community College (Clifton Forge, Virginia) instituted a program for forest technicians. There were a number of reasons for selecting this mountainous area college, but one of the primary reasons was the accessibility to work and study areas. The college property borders on the George Washington National Forest and also has ready access (within a 30 mile radius) to the Gathright and Goshen-Little North Mountain Wildlife Management Areas, Douthat State Park, two Federal fish hatcheries (Paint Bank and White Sulphur Springs) and Coursey Springs State fish hatchery, West Virginia Pulp and Paper Company mill (Covington), three sawmills, and the Monongahela and Jefferson National Forests. Over the past several years of development and expansion of the forest technology program, there has been a steadily increasing job market for graduates, as well as increased student interest in wildlife technology.

Dabney S. Lancaster Community College recently expanded its Natural Resources Technology offerings by initiating a two-year program in Wildlife Technology. This is a state-wide program (available only at DSLCC) and was designed to complement the existing DSLCC forest technology program. Students who had completed their freshman year in the forest technology major were admitted to the wildlife technology program this June. New students can enroll in the program in September.

Both the wildlife and forest technology programs are designed so that students can obtain the first year of the program at any community college in the Virginia system. Courses taken during this period would be

general education subjects as well as the supporting courses in business and drafting. Beginning the summer following the first year, students are required to be in residence at Dabney S. Lancaster Community College for a full calendar year. During this time the student receives instruction in technical forestry and/or wildlife subjects.

Approximately 50% of the student's second year is spent in the out-of-doors at one or another of the forest and wildlife facilities within the college region. Thus, ample opportunity is provided for hands-on experience with the latest forest and wildlife equipment and techniques. The college has sufficient equipment for each individual or crew and normally provides transportation from the college to the various work site. In addition to these work experiences, students take two extended trips to other forest areas of the State. Upon successful completion of the program, students are awarded the Natural Resources Tech-

Student John Wright of Bedford cruises timber with an aerial photograph.





nology Associate in Applied Science Degree with a major in forest technology or wildlife technology. The final decision between the forest or wildlife technology can be postponed until the start of the second year, and provision has been made for those students desiring to be game wardens by allowing them to select appropriate law enforcement electives.

The faculty for these programs consists of two full-time instructors with a combined total of 29 years practical experience as foresters and 7 years teaching experience. Mr. Robert E. Lockhart, program head for forest and wildlife technology, obtained a bachelor's degree in forestry from West Virginia University and a master's degree in forestry from Yale University, and has headed the forest technology program at Dabney S. Lancaster Community College since its inception in 1969. Prior to joining DSLCC, Bob completed 15 years with the U. S. Forest Service in various forestry and forestry-related positions throughout the eastern and midwestern United States. Mr. Wenard Weaver, instructor of forestry, earned a bachelor's degree in forest management at West Virginia University and served 6 years with the U. S. Forest Service, 6 years in consulting forestry, and 2 years with forest industry. Wenard joined the DSLCC faculty in 1971 and has assumed the major responsibility for training related to forest products. In addition, Dr. John F. Backels, DSLCC president, earned his bachelor's and master's degrees in wildlife management and forestry, respectively, at the University of Michigan, while his doctoral dissertation analyzed the existing forestry and wildlife technology programs throughout the United States.

Most of the students have come directly from high school; however, a substantial number have enrolled in the program after completing their military commitment, while others enrolled after deciding to change their field of work. Since the program first started (1969), students from 13 Virginia counties and cities, as well as two other states (Ohio and Pennsylvania), have graduated with a major in forest technology. The following table indicates the annual growth of the program, as measured by the number of graduates.

<i>Year</i>	<i>Number of Graduates</i>
1971	10
1972	16
1973	23

Approximately 70% (33) of these graduates have accepted forestry or forest-related occupations upon completion of the program. While the forest technician graduates have not been recruited as heavily as 7-foot basketball players, we have noted an increased number of requests for graduates each year. The following table provides a breakdown of the types and locations of employment of the 33 graduates in forestry or forest-related occupations.

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Using an increment borer, Roger Sulenski determines growth of a Virginia pine.

<i>Type of Employer</i>	<i>Number Employed in</i>			
	<i>Virginia</i>	<i>No.Car.</i>	<i>So.Car.</i>	<i>Ohio</i>
Pulp and Paper Companies	5	6	1	
State Forest Service	2	1		
U. S. Forest Service	4			
Self-employed Logger	2			
Wood Preservative Industry	3			
VEPCO (Forestry Dept.	2			
Home Construction and Surveying	2			
Home Construction	2			
Building Supplies	1			
Furniture Manufacturing	1			
Environmental Consulting				1

Starting annual salaries in the private sectors are averaging \$7000-\$7200 with some as high as \$8400. State and Federal forestry agencies vary from \$7200 to \$7350.

At a fish hatchery, John Wright and John Wallin (Hampton resident) work in trout culture.



**I**N the early morning sun's glare, I waded up a wide, trickling seaward stream. It was quietly trying to be the means of emptying a ten-acre saltwater lagoon. The stream set about this task at each low tide, never realizing its ambition would never be fulfilled. Not only did the lagoon reside in a basin, but with high tide, the stream would be forced to reverse its ambitions, flowing, now distended, back toward the lagoon. But the stream never gave up trying to empty the lagoon.

It was during an early-morning low tide that I first became addicted (one day last June while on vacation) to wading up this ankle deep current, searching for a now familiar prey. A mobile hunter, I armed myself with a foot-wide net fashioned to a three-foot long pole.

I usually spotted my prey 50 feet or so ahead, a dark blotch silhouetted in the gleaming reflection of this ambitious stream. At times, the prey's dorsal side stuck above the surface of the meandering brine.

"I've got him now," I would mutter with satisfaction.

I slowed my shuffling pace, extending my net just above the water's surface. A dozen feet away, I paused to study my quarry. Beady stalked eyes under the spiny rim of a carapace watched me. The creature backpedaled in a flash, its ten legs in evidence. It dodged to the left. I likewise. To the right, it scurried. I likewise. My threatening approach, more ominous each second, caused the crustacean, as a last resort, to wiggle back into the sandy bottom, hoping to bury itself from my view.

But too late. Down shot the net into the sand. A brown cloud exploded into the clear brine. The net ascended. Out of it a large front pincher snapped at the air. Other pinchers locked themselves into the mesh of the net.

I had my blue crab.

Author holds the net.



# BLUE

## THROUGH THE

By B. I.  
Spartanburg

Blue crabs are up and down the Atlantic Coast. I've seen them in Virginia and North Carolina. The scene above took place at Huntington Island Beach, South Carolina, named on some maps as Magnolia Beach, which is roughly equidistant between Georgetown and Myrtle Beach.

The efforts by most campers directed at catching blue crab are done by "fishing" for them. Lines and cords are tied around fetid pieces of old meat or chicken neck. This bait was hurled out into the lagoon I visited. After a short spell, the fishing crabber would decide to find out whether a crab had pinched itself onto the meat. Slowly the crabber would manually "reel in" his line, just enough to see if he had a crab on it. Then gingerly he'd lower his net, then suddenly scoop up the crab, meat and all.

Personally, I preferred the hunter approach—seek and ferret out. It seemed more fun, more sporting and one didn't have to handle that "yucky" meat.

After passing up the stream at low tide late one afternoon, I reached the lagoon. The stream had sucked much of the water's depth out of the peripheral areas of this marshy, bird-adorned pond. After I'd scooped up one of my largest blue crabs, a fellow with a pail came over to take a look at it.

I lowered the crab, still attached to the net, over my plastic pail, which was half filled with brine. The crab felt the wetness and began unlatching its hold on the net, thinking it had found an avenue of escape beneath. Originally I carried the water in order to keep my catches alive and fresh until they were to meet their

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# CRABBING

## SANDS OF BRINE

WEEKES  
uth Carolina

hellish death in a pot of boiling water. But I also discovered the water to be effective in causing the crab to release its claim on my net.

The fellow with the pail was out to find oysters. I suggested he try the bases of the marsh grass several yards away. There the oysters anchor themselves.

"I'd be careful about walking barefooted around here," he reciprocated, noticing my pedal nudity. "The oyster shells can cut your feet to ribbons."

After awhile, he stationed himself in about two feet of water and reached down feeling for the rough shells.

"Damn!" he exclaimed. He stood up and waded to me. "See what I mean?" He extended a bleeding finger toward me. It was dripping red profusely. It was a thin, rather deep cut. He put his hand into the salt water.

As I waded, a common sight were tiny shells walking in the bottom, walking nowhere in particular. Hermit crabs encased in oyster drills, snails and periwinkles carried these shells on their backs, shells that were their burdens of protection.

I noticed saucered depressions in the black muck of the lagoon bottom now covered by two-inch deep water. Cupped comfortably therein lay small blue crabs, their eyes peeping above the edges of these mini-craters. Safely hidden, secure in their obscurity, they awaited things edible to float by. Those I disturbed dashed out of their hide-aways. Upon my approach, the crabs sashayed back and forth like vacillating square dancers. Always they faced me, pinchers raised out of the water, snapping at me rather comically like toy boxers.

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"I caught a huge crab just about where you are now," the oyster digger called over to me. "It was covered with moss and it came right for me. His claws were as long as this screwdriver."

He held up his implement.

"He must have been king of this domain," I replied, waving my arm expansively over the general area of my side of the lagoon.

I headed back into deeper water. A pinkish sea slug floated by, carried gently by the stream, waving leaf-like appendages in rippling fashion. White fingerling mullet skipped over the water in schools darting from my path. I headed back to camp over a path littered with mounds of BB-sized balls packed neatly in cannon-ball fashion by tiny fiddler crabs that scurried into quarter-sized holes as I neared.

Back in camp the blue crabs were soon lifted out of boiling water. They were now red crabs. As you savor the white meat in the pinchers, you realize these instruments of pain can become tools of epicurean joy. Also you acknowledge the blue crab to be an arthropod (jointed legs). Crabs have the ability to automatically break off their appendages (autotomy) in order to escape an enemy's grasp (as you soon realize in trying to work their claws out of a net).

In dislodging the carapace, you are reminded the blue crab is of the class crustacea, a name defining creatures that bear a hard "shell" which is really an exoskeleton of chitinous material (similar in composition to one's fingernail). The segmentation of the body and appendages and their emanating from the abdomen puts our crab into a certain subclass (*Malacostraca*). Because the abdomen has six of these legs, it is snuggled into another subdivision. The fact that this crab has a large carapace, which is fused and covers the thorax, put it into the Eucarida division; and the fact that it has ten appendages makes it a decapod. The short abdomen makes it a Brachyura. Most important of all, however, is that it's an edible brachyuran, a soft-shell crab of the genus *Callinectes*.

And as the sea breezes sweep across the long-leaved pine, bayberry and red bay trees in the late afternoon, and you're sitting contentedly at camp munching a delectable morsel of white meat gleaned from the underside of *Callinectes*, you'll undoubtedly be thinking about all this.





# Peg it or Park it

By BILL COCHRAN  
*Roanoke*

Mount Rogers crest zone camper has  
thousands of acres in which to peg his  
tent.

**G**ROWING numbers of people agree that camping is the finest way to satisfy both the desire for travel and the traditional American love of the out-of-doors. To some, camping means spartan solitude. To others, it is gregarious luxury.

Let me relate a couple distinctly different camping trips I enjoyed recently: one in a tent trailer to a well organized, franchised campground, the other a backpack excursion to a campsite selected from several thousand acres of wild country.

For the one, I chose to rent a tent trailer to accomplish two basic purposes. First, I'd long been fascinated by these units which unfold like a Chinese puzzle, magically changing from a box-shaped, low silhouette trailer to a roomy vacation home. Although I'd camped across the country in everything from a pup tent to motor home, I'd never spent a night in a tent trailer. My second purpose was to show that even a novice family without equipment can plunge into the rapidly growing sport of camping by renting a tent trailer, travel trailer or motor home.

Most of the larger cities across the state now contain camping equipment rental agencies. In my home town of Roanoke there is Kamp-o-ree, located near the city's airport. In many parts of the U. S., vacationers now are flying to their destination, renting a mobile camper at the airport, then driving to a not-too-distant campground.

My wife, Katherine, 6-year-old son, Preston, and I chose a 13½-foot tent trailer, a hardtopped rig equipped with sleeping room for six, two-burner stove, ice box, sink and table. While it did not compare with some of the luxurious, gadget-laden motor homes, which rent for \$225 and up per week, plus mileage, a tent trailer isn't exactly like sleeping on the ground. The rental fee for a three-day trip like we were taking was \$36.

For this experiment, we chose a campground where we'd never visited before, one of the more than 500 Kampground of America (KOA) facilities. From the organization's Kampground Directory, we selected Deer Run Ranch Kamp near Woolwine in Patrick County. I wanted to stay in a KOA facility because such franchises offer two basic things which I believe are of special interest to the beginner camper who still may harbor uncertainties about the sport: a reliable name and a free computer reservation service, just like most motel chains.

It took only about 20 minutes for the Kamp-o-ree staff to affix the tent trailer to my Chevrolet Blazer and explain how to erect it. Then we were on our way, to pick up the Blue Ridge Parkway south taking us past vistas of natural beauty and rural landscapes.

Deer Run Ranch Kamp, a 100-site facility managed by Norman and Mary Samkus, is something more than a regular KOA. It is classified as a RKOA, meaning it is a Ranch Kamp, one of a very few located in eastern U. S. The difference: at a RKOA there is a Western flair, with horseback riding, trails and roaming room. We found our stay at the 350-acre area to have something of the flavor of living on a ranch. Graceful riding horses fed on pleasant, green hillsides; the sweet fragrance of freshly cut hay, curing under a smiling sun, drifted on the breezes.

After depositing \$4 per night for our stay, we were guided to our campsite by Mary Samkas, and before we could begin setting up, along came Norman asking if he could help. We declined, wanting to do it on our own, and sure enough, our new home on a wooded lot popped up magically. Katherine enjoyed its roominess, the security of being off the ground, and the conveniences such as electric lights and running water.

There are an impressive amount of things to do at

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Deer Run which contains two ponds: one provides swimming; both hold bass and bluegills. A major attraction is a weekly overnight trail ride where campers pay \$15 and travel by horseback to a mountain-top about three hours away where sleeping bags are rolled out under the stars and hot stew is served around a campfire. Rides of less duration are available, and we enjoyed one down to a remote and beautiful stretch of Smith River. The same river offers float trips on inner tubes. Campers are trucked upstream for a two-hour float back to camp. Canoe trips to downstream Philpott Reservoir also can be arranged. In addition, often there are hay rides, crafts and evening movies.

The toughest part we experienced about our trip was returning the tent camper to the rental agency. We were reluctant to give it up. The people in the rental business well know that this can happen, and are prepared to sell you the very rig—or another one—you rented, less your rental fee.

My second trip was considerably different from the first. My companion this time was my father, a retired forester. The two of us traveled up a Jeep trail to the mile-high Mount Rogers country south of Marion. It was the blueberry season. Giant, reddish-colored blueberry bushes are abundant in the open-meadow crest zone, and spill down into the timbered ridges at lower elevations.

Blueberries, of course, aren't the only attraction of this big sky country that looks considerably like a chunk of Montana or Canada misplaced in southwest Virginia. There are countless opportunities for hiking, horseback riding, hunting and camping amid some of the most impressive mountain country in eastern U.S. The area contains approximately 150,000 acres of public land, most of it a part of the Mount Rogers National Recreation area. Some 5,000 acres are being developed as the Grayson-Highlands State Park. Approximately 8,000 acres are open, alpine meadows, fringed with rhododendron, mountain laurel and wild azaleas, and accented by huge boulders thrust up out of the bowels of the earth during a more violent age.

As the U. S. Forest Service and Division of State Parks have purchased increasing amounts of the open

Rental tent trailer easily folds out to form comfortable home.



Riders head for overnight campout at Deer Run Ranch Kamp.

mountain range for public preservation and recreation, slowly vehicular traffic has been gated out. The idea is to keep the high country, the crest zone, wild and unmarred for those who care enough to hike or horseback ride into the area.

A newly developed Jeep trail of the Jefferson National Forest takes four-wheel drive vehicles from Virginia 603, just west of Troutdale, for approximately four miles up to the 4,400 foot elevation mark, just below the open meadow crest area.

We drove the rocky road in my Blazer to its termination point, then shouldered packs and hiked into the crest zone where we pegged our lightweight tent under a small maple bordered by a hedge of rhododendron and mountain laurel. To the west was Virginia's tallest peak, stately 5,792-foot Mount Rogers.

Swelling out of the earth near our tent were small springs that fed mountain rills gurgling through mist-nurtured ferns and offering good drinking water. Many of these grow into trout streams as they roll out of the high country, but we did not fish this trip.

Although there are three popular Forest Service campgrounds nearby, Grindstone, Raccoon Branch and Hurricane, located along the highways in the lower country, the crest zone camper is on his own, to peg his tent wherever he desires. And this is one of the joys of the area, an escape from the regimentation of established campgrounds. During our overnight trip, we did not spot a single person in the crest zone.

The Mount Rogers area offers wonderful opportunities for hiking and horsback riding. Its new Jeep trail can make getting to the area fairly easy. Although it is not a particularly tough challenge to a four-wheel drive rig, it does leave most sedan drivers behind and gives the off-road boys a feeling of escape and accomplishment. So the Mount Rogers area can be just about as tough or easy as a camper cares to make it.

In summary, for some, family camping is a recreation vehicle and a catalog of campsites. For others, it is a backpack and a wilderness map. For my family—well, we like to mix it up. Sometimes we park it; other times we peg it. Always we enjoy it.

**W**ILDLIFE damage complaints from landowners in the state of Virginia have increased the past few years. However, most of the complaints received by the Game Commission are for damage done by deer, bear and raccoon, although it is known that damage done by groundhogs or skunks is sometimes blamed on the raccoon. This does not always indicate a high population. As a result of the depredations of just one hungry animal, complaints may be received from the orchardist whose young trees are being destroyed or the farmer whose bean patch is being invaded.

Wild animals are especially fond of plant species grown under fertile conditions. Because of their feeding habits, they can damage crops in a number of ways: nipping off the terminal buds of trees (called browsing when done by deer or clipping when done by rabbits), which stunts growth; knocking ripe fruit off trees; knocking down plants as the animal travels through; and eating fruit, garden and field crops. Considerable damage is done to small trees when deer rub them to polish their antlers.

Since damage can occur in so many forms and over such a wide area by many species of animals, it is difficult to recommend control measures that will work under all conditions.

The most practical means of preventing wildlife damage to crops and orchards is to keep the population in check. The only legal way to achieve this is through the regular hunting or trapping season. This provides many hours of recreation for the hunter or trapper, as well as a monetary return to a landowner if he rents the hunting rights to his land. But hunting and trapping alone will not necessarily solve the problem. What often happens is that some large tracts of land are posted and, therefore, hunted very little or not at all. The "protected" animals in such areas move out into nearby fields and continue to damage crops. So, advertising one's land to hunters during the regular season to shoot off the surplus animals may not eliminate the problem, but conceivably could lessen the damage.

Another way to reduce nuisance deer is through tight control of herds by a special permit system, being tried by the Game Commission in farming areas experiencing heavy crop damage. Basically, it is a permit system whereby a farmer who has excessive deer damage may harvest more than the season bag limit of doe in the area where the damage occurs. He may obtain the permit by contacting the county game warden, who, with the assistance of the district game biologist, will assess the damage and along with other data determine the number of excess doe that should be removed from the area. Based on this recommendation, the Commission will then issue permits for the number of does to be removed from the specified farm. The farmer may sell



or give the permits to other hunters, or harvest the deer himself, but only during the open deer season. Thus the landowner has the opportunity to manage the deer on his own land in such a way as to keep the size of the herd compatible with other land practices.

Still another way to remove nuisance animals is by trapping. It is too costly and time consuming to recommend this method for large fields or orchards. In trapping large animals such as bear and deer, the traps are expensive to build and maintain, special bait has to be provided, special equipment is needed to haul the captured animals, and it is expensive to move them very far. Some individuals are more inclined to do damage than others and, when moved, might continue to do damage in their new territory.

Three additional ways to keep nuisance animals away from crops are by (1) repellents, (2) frightening devices, and (3) fences, which have been the most effective when built the right way.

Repellents turn animals away either by their odor or bad taste. The more effective materials have been tankage, Spreader-Sticker 268, and a mixture of red pepper and bonemeal. Tankage is a residue of animal tissue from slaughter-house waste and is used as a dried meal. It is applied in "3 X 5 AA grade tie bags" which are hung on fences or stakes near the crop to be protected, or on individual trees. These should be applied at least twice a year and individual bags replaced if pulled down by a marauder, which does happen occasionally.

Tankage has been used on many crops in Virginia and has successfully kept deer away from them. One farmer found that bags of tankage 15 feet apart on the fence kept deer out of his 20-acre cornfield. In gardens and melon patches, bags tied on stakes a few feet apart just above the plants have worked well. If used on small trees, one bag should be tied to each tree about 2 or 3 feet above the ground. This proved effective in a two-year experiment on young peach trees.





By MAX CARPENTER, *Game Biologist*, and  
JOE COGGIN, *Supervising Biologist*

The commercial chemical called Spreader-Sticker 268 has proved very effective as a deer repellent. The active ingredient is ammonium soaps of the higher fatty acids and is mixed  $\frac{1}{3}$  to  $\frac{1}{2}$  gallon per 100 gallons of water. It is applied as a spray on vegetation near deer trails coming out of woods into the field and also in parts of the field where major crop depredation is taking place. A second application is often necessary after heavy rains.

Another repellent that has proved effective in keeping deer and groundhogs from beans and corn is a mixture of one ounce of Cayenne red pepper per 4 pounds of bonemeal. The mixture was applied as a dust once a week (or after each rain) on a study plot at the Gathright Wildlife Management Area in Bath County. Sometimes the new growth on treated bean plants was clipped by groundhogs but the damage was minimal. All beans in the plot not dusted as well as the plot treated with Spreader-Sticker 268 were completely destroyed by the middle of August and produced nothing. However, the two plots (56 linear feet) treated with red pepper and bonemeal mixture produced  $7\frac{1}{2}$  bushels of beans. The writers recommend this treatment for small gardens, but the expense and difficulty of applying to large areas limits its use.

The treatment was applied to sweet corn ears as soon as the silk began to show, but a problem developed on this study. Raccoons were attracted by the bonemeal and the pepper was not hot enough to repel them, even when two ounces per 4 pounds of bonemeal were used. Once the raccoons damaged the ear of corn, groundhogs would then eat the ear even though treated.

The devices described below have worked well in some parts of the state. However, devices involving explosives should be used with caution and recently have become difficult to obtain.

One successful device used the M-80 firecracker spaced in a fuse rope hung in and around the crops to

be protected. The rope burned slowly and the firecrackers exploded at intervals. Further experiments are planned with other frightening devices, such as an electronic alarm system called Avi-larm.

Another frightening device that has proved effective is the carbide gun. It explodes automatically at timed intervals, and like the rope and firecrackers, works well for short periods of time. Then there is a tendency for animals to become accustomed to the noise and disregard it. Another disadvantage is that it cannot be used at night when deer and other animals are doing the most damage, because it creates a disturbance to people living nearby.

The leaning fence, of which three have been built in Virginia, has been nearly 100 percent effective in turning deer. It does not work with the smaller animals. The use of such a fence is limited to gardens and other small plots, because the cost of fencing large fields where other fences are already established would make it prohibitive. Possibly this fence could be used around special areas, such as airport runways and truckfarms. One, built around a garden on the Gathright Wildlife Management Area, where deer are numerous, has successfully turned deer for many years.

This fence is made of 6-foot chicken wire with 2-inch mesh, having one edge fastened to the ground with stakes and extending upward at an angle approximately  $49^\circ$ . It is sloped away from the crop to be protected. As deer approach the fence, they walk under the upper edge and seem unable to jump over. The cost and durability of such a fence varies with the type of material used and the location on which it is built.

Many species of wild animals prefer plants grown in fertile soil, such as garden vegetables, soybeans, corn, tender wheat, and young trees in orchards. There are several known ways to reduce or stop such damage. The most logical way is to remove some animals during the legal shooting or trapping season. After this has been done, those remaining can be kept away from crops by the use of repellents that have a bad odor or taste. The use of tankage, spreader-sticker 268, and pepper and bonemeal have proved the most effective to date. However, no repellent is 100 percent effective. For small areas such as gardens, the leaning fence has been the best method to use in keeping out deer.

Sources for purchase of game damage control materials include: *M-80 firecracker and fuse rope*—New Jersey Fireworks Mfg. Co., P. O. Box 217, Elkton, Md. 21921; *Carbide gun*—Dobson's Implement Co., Brandywine, Md. 20613; *Tankage*—Winchester Rendering Co., Winchester, Va. 22601; Norton & Co., Alexandria, Va., Lynchburg Rendering Co., Lynchburg 24502; Triangle E By-Products Co., Linville 22834; *Bags*—Millhiser Bag Co., Inc., P. O. Box 1117, Richmond 23213; *Spreader-Sticker 268 "Repel"*—try seed and Farmer's Coop. stores.

# NATIVE vs EXOTIC FISHES

A look at history helps put the problems in perspective.

By ALLAN A. HOFFMAN, M.D., *Member  
Commission of Game and Inland Fisheries*

**O**CCASIONALLY, our Commission receives comments from naturalists or sportsmen expressing concern that the introduction of "exotic" fishes may adversely affect our "native" game fish populations.

With the exception of the 2,500 acre Lake Drummond in the Dismal Swamp and a few small scattered natural lakes (totaling less than 100 acres in size), Virginia's freshwater fishery before the time of European settlement was supported by free flowing streams in the mountains, piedmont and coastal plain. Total water area probably did not exceed 225,000 acres.

It is apparent that the common game fishes were less uniformly distributed throughout the Commonwealth than they are now. Brook trout occurred in streams along the entire Appalachian chain, but were conspicuously missing in some high quality streams in which they were stocked in the late 19th century.

Our best estimates indicate that largemouth bass were found only in Atlantic slope streams below the fall line in Tidewater Virginia south of Potomac River watershed, possibly a few in the Tennessee River drainage in extreme southwest Virginia.

Smallmouth bass occurred only in the Tennessee and Big Sandy River drainages in southwest Virginia and were *conspicuously absent* from the James, Rappahannock and Shenandoah Rivers.

Chain pickerel were widely distributed in the rivers of the Atlantic slope but were unreported west of the Blue Ridge.

Walleyes apparently occurred only in the Tennessee River drainage, and there were no reports of their presence in the New River or on the Atlantic slope before their introductions in the early twentieth century.

Striped bass from Albemarle Sound spawned, unimpeded by dams, in the Roanoke River upstream nearly to Roanoke.

Many of the true native fishes were of the non-game variety and possibly a few species have become extinct or nearly so, such as the James River sturgeon. There are, at the present time, eight rare and endangered fishes of the sucker, minnow, madtom and darter families existing in isolated streams in southwestern Virginia.

Inland waters of Virginia now total approximately 450,000 surface acres of water of which some 130,000 acres are in large impoundments and public fishing lakes and 50,000 acres in farm ponds, which support

well over a third of fishing trips made in the Commonwealth today. And the heavy hand of civilization has radically changed the physical character of most of our rivers.

Two points are worth emphasizing: (1) Only a fraction of the waters in Virginia exist in their natural unmodified state and most indigenous species are not adaptable to the new habitats. (2) Some native game fishes have been introduced or spread naturally to a great many areas that are as foreign to their original brood stocks as if they had been transported many hundreds or thousands of miles. In fact, it appears that perhaps Virginia walleyes and largemouth bass, which were river-adapted fish, may not be the optimum strains for stocking in Virginia impoundments. In this regard, our Fish Division has obtained lake-adapted walleyes from Nebraska and largemouth bass from Florida for stocking in our lakes as they may have a superior genetic constitution for adaptation to our contemporary aquatic ecosystems.

The waters of most of our early rivers were probably quite infertile. The tremendous increase in the surface area and fertility of our impounded waters has resulted in large forage and non-game populations. Fortunately, striped bass have become landlocked in Kerr Reservoir, and the self perpetuating population in the Roanoke River watershed provides brood stock for introductions in many large impoundments. In selected bodies of water, rainbow and white bass have been introduced to utilize these forage fish and excess numbers of pan fish. Despite intensive studies, interference by these predatory fish with our more traditional game fishes has not been demonstrated. In fact, the largest proportion of our trophy catches of largemouth and smallmouth bass occur in those waters in which our Commission has established large predatory fish populations.

The warm-water fish stocking program of our Commission, therefore, is directed towards introducing appropriate species adaptable to new impoundments or drastically altered large river ecosystems. For the most part these game fishes are all "exotic" to these waters.

The small proportion of our waters that are essentially untarnished by activities of man include many of our finest brook trout streams. Our Commission has recognized the desirability of maintaining a significant number of streams in this condition. The first step has been to enact a trout stream classification system to identify these streams and then to act by regulation to protect their fauna and encourage restrictions in land use practices so as to protect these sensitive ecosystems from degradation.

Our Commission, therefore, has a dual objective for the management of Virginia's inland fisheries: protection for our true native brook trout waters, and active development and management of our impoundments and highly modified rivers.





Edited by MEL WHITE

## Hunter Safety Program Grows

From modest beginnings in 1961 when the Virginia Commission of Game and Inland Fisheries joined the National Rifle Association in a co-operative effort to teach hunter safety, Virginia's program has grown until nearly 2000 novice and experienced hunters graduate each month. The four hour hunter safety course covers safe gun handling, knowledge of guns and ammunition, game identification, conservation, survival, hunter-landowner relationship, bow hunting, sportsmanship and guns in the home.

The course has been accepted by many schools in Virginia as part of the Physical Education Program, making it available to many more young people. Virginia 4-H Camps incorporate hunter safety in their summer camps program. A great many sportsmen's clubs now require that a new member take the course prior to joining the club. Military bases in Virginia require that a hunter take the course prior to hunting on military property.

Statistics prove that a trained hunter is a safer hunter. Trained hunters are rarely involved in any type of hunting accident. Virginia's modest but regrettable annual toll to hunting accidents could undoubtedly be reduced if all hunters, young and old, could complete the Hunter Safety Course. For further information concerning the Hunter Safety Course, contact your nearest Game Warden or the Safety Officer, Virginia Commission of Game and Inland Fisheries, P.O. Box 11104, Richmond, Virginia 23230. All volunteer hunter safety instructors in Virginia are to be commended for their unselfish efforts in promoting hunter safety.



### One Hundred Thousand Club

James N. Kerrick, left, Safety Officer for the Virginia Commission of Game and Inland Fisheries, and Mr. Dolph Hays, second from the right, Tenth Congressional District Commissioner for the Game Commission, were at National Rifle Association headquarters recently to accept a certificate signifying the successful training of the 100,000th student in the Hunter Safety Program. Major General Maxwell Rich, Executive Vice-President of the National Rifle Association, on Kerrick's left, made the presentation which was witnessed by NRA President, Dr. C. R. (Pink) Gutermuth, on the right.

### What's That Bird?

Once again, the names of a number of North American birds have been changed, according to the Cornell University Laboratory of Ornithology, and the names of some of our common birds will be very uncommon until we get used to them. No more Baltimore Oriole, Myrtle, Warbler, or Slate-colored Junco! In some cases, the new designation simply adds another word to prevent confusion with foreign birds having the same name. Thus, Robin becomes American Robin, Catbird is now Gray Catbird, and Parula Warbler is Northern Parula. Other changes better suggest the family to which the birds have always belonged: Upland Plover becomes Upland Sandpiper, Leach's Petrel becomes Leach's Storm-petrel, and the Wood Ibis is now the Wood Stork.

Changes have been made in the names of some species because studies have shown that they freely interbreed in nature. Such interbreeding occurs primarily in the midwestern portion of the continent where eastern and western counterparts come together. Thus, Baltimore and Bullock's Orioles are considered races, and Northern Oriole is the new name that now encompasses both of them. Redshafted, Yellow-shafted, and Gilded Flickers are races of what we now call the Common Flicker. Audubon's and Myrtle Warblers have been combined as races of a single species, the Yellow-rumped Warbler. And four juncos—Slate-colored, White-winged, Oregon, and Guadalupe—are now considered races of a single species called the Dark-eyed Junco.



# Know Your WARDENS

Text and Photos

By F. N. SATTERLEE  
*Information Officer*

PHILLIP S. PARRISH

*Game Warden, Northern Virginia*

**P**HIL Parrish is assigned to duty as a Virginia Game Warden in what undoubtedly is the most heavily populated, over-urbanized and traffic-choked area of the Commonwealth . . . and he loves it! His father was a government worker in the Washington, D. C., area, and Phil was born and raised in Fairfax County. Following graduation from Fort Hunt High School in Alexandria, Virginia, he attended Ferrum College near Roanoke, and later the University of Richmond where he completed three of the four years for a degree in business administration.

At this point in his life he learned of the openings for game wardens with the Virginia Game Commission, applied, and was accepted in May of 1973. After completion of the required training period he received his assignment to the northern Virginia area.

Initially he was apprehensive about the assignment in that he had grown up in the area and was familiar with heavy concentration of people, places and things that are urban. Now, however, he wouldn't trade places with anyone, for not only is the area a huge challenge . . . it is also the source of great satisfaction to Phil.

Although his assigned area is considered to be Fairfax County, it in truth encompasses Arlington and Alexandria as well. It is in this territory that some of the most transient people in the world live, seek recreation, and yearn to learn about wildlife of the field and stream variety. They include not only the government workers and politicians, but also the military of both U. S. and foreign countries and countless staff members from the huge number of embassies which are situated in Washington D. C.

The most rewarding aspect of the job, according to Phil, is constant contact with large numbers of young people. Requests for appearances at schools (there are 234 in his territory), and the contact with students (170,000 is the enrollment in the three school systems) really keep him busy. However, he is quick to point out that the rewards are great in dealing with these children and their parents, for they are the most appreciative of his efforts. He feels that if he can contribute just a little to their understanding of wildlife and the outdoors, he has been successful. As yet unmarried, Phil and his roommates share a home in Fairfax.



Populous northern Virginia, including the counties of Fairfax, Arlington and Alexandria, is Phil Parrish territory. Extremely diverse, the area ranges from heavily traveled urban arteries to the tranquil terrain of school playgrounds where students learn to work with the soil and nature.



VIRGINIA WILDLIFE





Edited by ANN PILCHER

### NOTEWORTHY TREES OF FAIRFAX COUNTY

Among 24 entries receiving citations in the 1973 Noteworthy Trees of Fairfax County contest (sponsored by the District Youth Council of the Northern Virginia Soil and Water Conservation District, 3945 Chain Bridge Rd., Fairfax—703/591-6660) was a possible State champion: a mockernut hickory with 8 ft. 6 inch circumference growing in King's Park in the Springfield magisterial district. This largest of species nomination was made by Springfield resident Arnold Wong.

Most popular was an American beech growing on the grounds of the Epworth United Methodist Church in Falls Church. Nominated four times in two different categories, this tree won both the "Largest" and "Most Beautiful" titles for American beech species.

Most distinctive clump was a group of hemlocks, growing along Scotts Run in McLean.

An oak, in Reston, was found to be growing under the most adverse conditions. Over 200 years old, it has twice been struck by lightning. Its root sys-

tem was nearly destroyed by development in the area and the tree was barren and dead to all appearances, but efforts by local residents to save the tree by artificial feeding were rewarded by the tree's new growth.

Several winning entries were trees with very interesting backgrounds, such as a sycamore entered by Mrs. Winslow R. Hatch of McLean. It stands behind a house that served as a hospital during the Civil War; this old tree was large even then, and now is 16 feet 5 inches in girth, winning both "most beautiful" and "largest" of its species, and was the largest tree entered in the contest.

The District Youth Council of the Northern Virginia Soil and Water Conservation District is a group of students from Fairfax County High Schools who (a) are committed Eco "Freaks," (b) want to learn about and help preserve local environment, and (c) are committed to the preservation of our past and conservation of our present, to avoid consternation in our future.

Winners of the 1973 Wythe County Wildlife Food Patch Contest, sponsored by the Big Walker Game and Fish Club, include Gary Rogers, left (best county patch), Eddie Umberger, Jay Poole, and Clint Jacobs. Vo-Ag teacher Harold Cox stands at right; game warden Robert Mitchell and game manager Virgil Boone, to the rear. Messrs. Mitchell and Boone assisted with the project and judged the patches. Not pictured but also a winner was Ann Pratt. Prize money totalling \$190 was awarded, according to club president Franklin T. Mabe.



**GAME & FISH  
CLUB  
HONORS  
FOOD  
PATCH  
WINNERS**

Photo courtesy  
Southwest Va.  
Enterprise



### KAB OFFERS NEW CLEAN-UP AND LITTER BAGS

Ready for shirtsleeve environmental action by citizens everywhere, new and official Keep America Beautiful clean-up and litter bags are now available at a nominal price to local community groups, industry trade associations, companies and labor unions. The large clean-up bag features the red and blue Keep America Beautiful emblem in a random design against a white background. Smaller litter bags are offered in two styles—poly plastic or paper—ready for imprint of sponsoring civic group or company. For free brochure detailing sizes, costs and specific features, write: Keep America Beautiful, 99 Park Avenue, New York, N.Y. 10016.

The attractive, useful clean-up and litter bags, designed for environmental projects in local communities, tie in with Keep America Beautiful's nationwide program, now in its 20th year. Supported by more than 100 companies, Keep America Beautiful is guided in its public service work by a 102-member National Advisory Council, composed of representatives from top civic, service and professional clubs as well as from 20 agencies of the federal government.

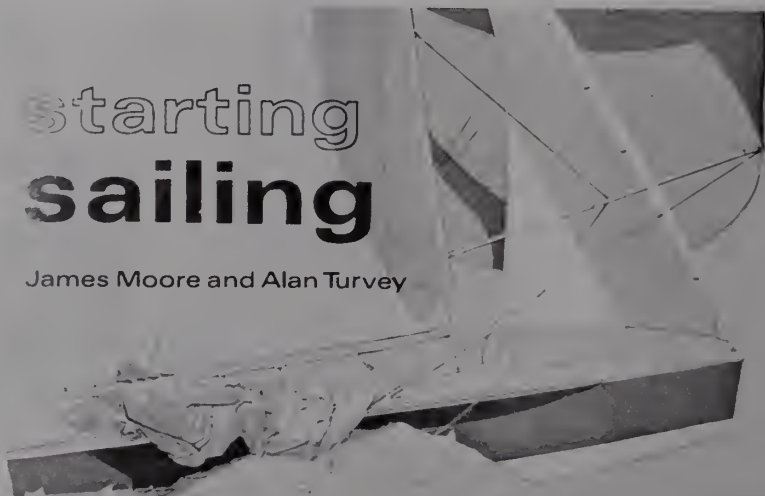




Edited by JIM KERRICK

## Starting sailing

James Moore and Alan Turvey



A complete beginner's guide with over 400 fully detailed illustrations

Doubleday's newly published *Starting Sailing* (\$5.95) is a step-by-step approach to how to sail, designed specifically for all newcomers or recent addicts to the sport. It features a remarkable series of extremely clear and accurate drawings of all the maneuvers and processes involved in getting a sailing craft to perform correctly and safely on all points of the wind. Additional information covers such matters as clothing, safety, the parts of a boat, knots and whipping, maintenance and a short non-technical explanation of how a boat sails.

This book is entirely new and original in its approach. It is applicable to all age groups, since it can be readily understood by children, yet is sufficiently sophisticated to appeal to adults. All the illustrations have been drawn by a yachtsman who has taken immense care to see that they are both accurate and clear. Unlike a photographic approach, it has been possible for the artist to simplify the illustrations where necessary to cut out detail that might distract from the points being made.

It would not be too much to say that *Starting Sailing* is a breakthrough in

instructional books on the subject and is certainly the most valuable aid to good sailing on the market today.

### OTHER SEAMANSHIP BOOKS OF INTEREST PUBLISHED BY DOUBLEDAY:

*Basic Seamanship and Safe Boat Handling* (by Blair A. Walliser); *Complete Beginner's Guide to Sailing* (A. H. Drummond, Jr.); *How to Choose a Sailboat* (Hervey Garrett Smith); *Motorboatman's Bible* (Mark Penzer); *Practical Boating* (W. S. Kals); *Practical Navigation* (W. S. Kals); *Racing Sailor's Bible* (Hervey Garrett Smith); *Sailboat Classes of North America* (Fessenden S. Blanchard); *Small-boat Sailor's Bible* (Hervey Garrett Smith).

### Time to Check Your PFD's

As you prepare for the ensuing boating season, remind yourself to take careful note of the lifesaving devices you have been using in the past.

Chief reason for doing this is that new regulations for personal flotation devices (PFD'S) went into effect on October 1 of last year—just about the time when many boaters were calling it quits for the season. These new reg-

ulations classify all PFD's into various performance types and describe which types are acceptable on boats of specified sizes.

Before assuming the worst (that all of your lifesaving equipment is obsolete), familiarize yourself with the following guidelines.

If your boat is less than 16 feet in length, you probably already meet the specified requirement. On these rigs, the familiar buoyant cushion continues to be acceptable equipment, as long as there is one cushion for each person on board.

On recreational boats 16 feet and longer, you must have a Coast Guard approved wearable device for each person aboard. In addition, one throwable device (such as buoyant cushion or ring buoy) must be carried as well.

The new regulations do give you some flexibility and guidance in determining which PFD'S to purchase and use aboard your boat. Just be sure to look for the Coast Guard approval number, which can usually be found above or below the manufacturer's stamp. Also, be aware that there are different sizes for adults and children.

To help you choose the correct PFD for your boat, or to verify if your present PFD'S are acceptable, consult your marine dealer. If there is any doubt as to lifesaving equipment, a free pamphlet is available through the boating safety branch of any Coast Guard District.

Remember that boating safety depends largely upon you, and conforming to the new lifesaving device regulations is one area where compliance takes only a minimal effort.

The Virginia Game Commission offers one final tip on PFD'S. Use them! In case of an emergency, PFD'S are absolutely useless if they're stored in a locker or some other relatively inaccessible place.

VIRGINIA WILDLIFE



*Endangered Species*

*Report:*

## Rafinesque's Big-Eared BAT



By JOHN W. TAYLOR  
*Edgewater, Maryland*

ONLY within the State could Rafinesque's bat be considered an endangered species. In other parts of its range, which includes much of the Middle West, it is frequently encountered. Though it may already have disappeared from Virginia (the last known record was in 1909 in Tazewell County), it is still found in nearby parts of Kentucky and Tennessee, and could show up at any time in the southwestern counties.

Two common names of this bat are quite distinctive: big-eared bat and lump-nosed bat. The very large ears are its most conspicuous feature, reaching the middle of the body when laid back, and joining each other across their base at the forehead. These remarkable appendages, thin and naked, save for slight furring around the edges, taper to nearly pointed tips. The other name refers to a prominent pair of glandular masses (the function of which is unknown) between the nostril and the eye.

These characters serve immediately to distinguish this from all other bats, except for its close eastern relative which shares the same common names. Indeed, authorities are still not in accord regarding the taxo-

nomic differences between the two; nor are they in agreement regarding the first discovery of the species. Some hold that the name *Rafinesquii* belongs to the eastern race.

They do agree that they are obviously two different creatures. Eastern specimens generally have white tipped hairs on the belly; western individuals have buff-pinkish tipped hair. Eastern animals show a strong contrast in color between the basal portion and the tips of the hairs on the back and the belly; there is no such contrast on the hairs of western specimens.

Samueal Constantine Rafinesque, after whom the species was named, was an early naturalist, an immigrant of French descent. Known as an eccentric, and not entirely reliable in the estimation of other scientists, he nevertheless contributed valuable work as a pioneer in Kentucky and Ohio. Audubon, a contemporary, pokes fun at him in journals, telling of his naive credulity and over-anxiety to find new species, and describing his odd habits. One story told by Audubon is to the effect Rafinesque, a house guest at the time, chased a bat about a room with Audubon's choice violin!

# PERSONAL FLOTATION DEVICES

## A TYPE FOR EVERY PURPOSE

### BUOYANT VEST



**TYPE II** — Probably the most common wearable PFD, a Type II is designed to turn an unconscious person in the water from a face downward position to a vertical or slightly backward position. Recommended for closer, inshore cruising and available in cloth covered or molded foam models, they are acceptable for all size boats.

### RING BUOY



**TYPE IV** — A Type IV PFD is designed to be thrown to a person in the water and not worn. Acceptable as a PFD for boats less than 16 feet and canoes and kayaks and required as a throwable device for boats 16 feet and over in length.

Boats 16 feet and over must have one throwable device on board.

### BUOYANT CUSHION



**TYPE III** — Type III PFD (not pictured) incorporates a host of special purpose devices worn for safety when participating in water sports. Included are certain ski vests, tailored life jackets, floating hunting coats, floating fishing vests, etc. They are designed to keep the wearer upright and afloat. They are acceptable for all size boats but recommended only when physical activity prevents wearing a type I or type II.

### LIFE PRESERVER



**TYPE I** — A Type I PFD is a life jacket designed to turn an unconscious person in the water from a face downward position to a vertical or slightly backward position. Recommended for off-shore cruising. Acceptable for all size boats. Pictured is one of many styles.

All boats must carry one personal flotation device for each passenger.

KRUTH